

KUZMA, Eugeniusz

Contribution to a certain method of measuring the thermistor time constant.
Przegl elektroniki 3 no. 5:265-267. My '62

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki,
Polska Akademia Nauk, Warszawa.

KUZMA, Eugeniusz

Compensation of influence of ambient temperature changes in
thermistor generators. Przegl elektroniki 3 no.10:618-621
0 '62.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki,
Polska Akademia Nauk, Warszawa.

KUZMA, Eugeniusz, Dr. inz.

Temperature compensation in the circuit of an unbalanced
Wheatstone bridge. Pomiar 8 no.3:110-114 Mr '62.

KUZMA, E.

Contribution to the problem of properties of an unbalanced
Wheatstone bridge. Archiw elektrotech 11 no.2:241-245 '62.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki,
Polska Akademia Nauk, Warszawa.

KUZMA, E.

Determination of the optimum time response of grid voltage in a thermistor characterograph. Archiw elektrotech 11 no.3:465-478 '62.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki, Polska Akademia Nauk, Warszawa.

KUZMA, E.

New method of determining the value of thermal time constant of a thermistor. Bul Ac Pól tech 10 no.10:613-615 '62.

1. Department of Electronics, Institute of Fundamental Technical Problems, Polish Academy of Sciences, Warsaw. Presented by J. Groszkowski.

KUZMA, C.; KUZMA, E.

The unbalanced Wheatstone bridge with a double measuring element.
Archiw elektrotech 11 no. 1:137-151 '62.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki, Polska Akademia Nauk, Warszawa.

KUZMA, E.

A simple method of measuring the incremental loss coefficient of a thermistor. Archiw elektrotech 11 no.3:629-631 '62.

1. Zaklad Elektroniki, Warszawa.

KUZMA, E.

On the real process of the capacity-temperature characteristics and the loss coefficient of a thermistor. Archiw elektrotech 11 no.3:631-634 '62.

1. Zaklad Elektroniki, Warszawa.

KUZMA, E.

Certain compensation method of the unbalanced Wheatstone bridge.
Archiw elektrotech 11 no.4:781-788 '62.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki,
Polska Akademia Nauk, Warszawa.

P/019/62/011/004/006/010
D271/D308

AUTHOR: Kuźma, E.

TITLE: Ambient temperature compensation in a thermistor oscillator

PERIODICAL: Archiwum Elektrotechniki, v. 11, no. 4, 1962, 789-796

TEXT: The effects of ambient temperature and supply voltage variations on the frequency of a thermistor oscillator are discussed and a method is proposed for compensating ambient variations by self-adjusting supply voltage. The influence of the ambient temperature (θ) and supply voltage (u) on the frequency is caused by the strong dependence of the static (R) and differential resistances (r) of a thermistor on the position of the operating point on the V-I characteristic. Expressions are derived for R and r for two adjacent points of the characteristic, and functions $R = f(\Delta\theta_0)$ and $r = f(\Delta\theta_0)$ are illustrated, in families of curves corresponding to values of Δu between +10% and -10%. Using the

Card 1/2

Ambient temperature compensation ... P/019/62/011/004/006/010
D271/D308

above expressions in the equation of thermistor oscillator, a formula is obtained for the frequency as a function of ambient temperature variations, which is also illustrated in a family of graphs plotted for values Δu in the above interval. From these graphs compensating voltages are derived and plotted as $u = f(\Delta \theta_o)_{\omega=\text{const}}$ and $U_z = f(\Delta \theta_o)_{\omega=\text{const}}$. The latter is a nearly rectilinear dependence which permits the use of a compensating thermistor in a passive network the output of which follows the law $U_z = a\Delta \theta_o + U_{zo}$. The circuit of one of the possible networks is given. There are 6 figures.

ASSOCIATION: Zakład Elektroniki IPPT PAN (Department of Electronics, IPPT, PAS)

SUBMITTED: August 1, 1962

Card 2/2

KUZ'MA, Yevgeniy, doktor-inzhener (Varshava, Pol'skaya Narodnaya Respublika)

"Fundamentals of the theory of electric d.c. thermistor circuits"
by I. F. Voloshin. Reviewed by E. Kuz'ma. Inzh.-fiz. zhur. 6
no. 4:136 Ap '63. (MIRA 16:5)
(Thermistors) (Electric circuits)

KUZMA, E.

Preliminary results of noise measuring of Polish-made thermistors.
Archiw elektrotech 12 no.2:455-456 '63.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki,
Polska Akademia Nauk, Warszawa.

KUZMA, E.

Influence of the type of heat treatment on the thermistor properties of sintered manganese and nickel oxides. Archiw elektrotech 12 no.2: 457-462 '63.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki, Polska Akademia Nauk, Warszawa.

KUZMA, Fugentusz

Certain electric properties of cobalt oxide and manganese sinters as well as cobalt nickel sinters. Przegl elektroniki 4 no.12: 702-707 D '63.

The thermal treatment method and its influence on the electric properties of certain sinters of manganese, nickel, and cobalt oxides. Ibid.: 707-712

KUZMA, E.

Power and temperature characteristics of thermistors produced from certain manganese and cobalt oxide sinters. Archiw elektrotech 13 no.3:715-719 '64.

1. Department of Electronics of the Institute of Basic Technical Problems of the Polish Academy of Sciences, Warsaw.

L 17921-65 EEO-2/EXT(1)/EED-2 Pn-4/PL-4/Pae-2 IJP(c)/ASD(a)-5/APGC(b)/RAEM(a)

NR: APLO/490L

00010/64 013/003/0700/0704

00010/64 013/003/0700/0704

00010/64 013/003/0700/0704

detector sensitivity, detector sensitivity dependence

For the purpose of reference, the following information is provided:

00010/64 013/003/0700/0704

00010/64 013/003/0700/0704

Card 4/4

L 17921-45

ACCESSION NR: AP4049594

SECRETARY OF DEFENSE

OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301-1000

ATTENTION: DIRECTOR OF THE OFFICE OF THE SECRETARY OF DEFENSE

1. REFERENCE TO THE SECRETARY OF DEFENSE

U REF SOV: 000

OTHER: 004

Card 2/4

Modulation	Flux	Detector	Signal-to-noise ratio of output in W
With modulation of radiation flux, al- crovoltage meter with a phase detector	Perfectly linear $E = 100 \mu A$		10^{-7} 10^{-8}
With modulation of radiation flux, wide- band amplifier with an RC amplifier	Incandescent lamp	Thermo- couple	10^{-8}
Without modulation of radiation flux, Wheatstone bridge	Incandescent lamp	Thermo- couple	10^{-8}

* ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

Card 3/4

TABLE 2. DETECTOR SENSITIVITY IN A BRIDGE NETWORK FOR VARIOUS WAVELENGTHS

[illegible]

Page 44

L 9347-66

ACC NR: AP5012175

PO/0054/65/000/004/0156/0161

AUTHOR: Kuzma, E. (Doctor, Engineer)

26
B

TITLE: Load of sensing elements measuring resistance in a nonbalanced Wheatstone bridge

SOURCE: Pomlary, automatyka, kontrola, no. 4, 1965, 156-161

TOPIC TAGS: automation, measuring instrument, load, electric resistance

ABSTRACT: A generalized equation describing the relationship between the power generated in the sensing element and the measuring current passing through it as a function of bridge disturbance is derived and analyzed. Instructions for designing electric systems with minimum loading of the sensing element by the measuring current are given. Orig. art. has: 30 formulas, 9 figures, and 3 tables.

ASSOCIATION: Instytut Podstawowych Problemow Techniki (Institute of Fundamental Engineering Problems)

SUBMITTED: 00

ENCL: 00

SUB CODE: 09

NO REF SOV: 004

OTHER: 000

Card 1/1

DURKOVSKY, J.; KUZMA, I.

Experience with the cobalt bomb GBT-400 in the therapy of
bladder carcinoma. Cesk. radiol. 20 no.1:7-9 Ja '66.

1. Radiologické oddelenie Vyskumného ústavu onkologického
v Bratislave.

MUNGYEROVA, G.; KUZMA, I.; JACZ, K.

Effect of Co60 irradiation on brain tumor cultures in vitro.
Bratisl. lek. listy 43 Pt 2 no.7:419-426 '63.

1. CSAV - Ustav experimentalnej mediciny SAV v Bratislave,
riaditel clen koresp. SAV J. Antal, Dr. Sc., Vyskumny ustav
onkologicky v Bratislave, riaditel clen koresp. SAV V. Thurzo,
Neurochirurgicke oddelenie KUNZ v Bratislave, veduci doc.
MUDr. J. Zucha.

(BRAIN NEOPLASMS) (COBALT ISOTOPES)
(TISSUE CULTURE) (GLIOMA) (MEDULLOBLASTOMA)
(EPENDYMOMA) (GLIOBLASTOMA MULTIFORME)
(NEURILEMMOMA) (MENINGIOMA)
(RADIOISOTOPE TELETHERAPY)

MUNGYEROVA, G.; KUZMA, I.; JACZ, K.

The effect of ionizing radiation on the biological activity of gliomas. Neoplasma (Bratisl) 12 no.3:285-288 '65.

1. Department of Experimental Cytology of the Institute of Experimental Medicine of Slovak Academy of Sciences, Radiological Department of the Oncological Research Institute and Neurosurgical Department of KUNZ, Bratislava, Czechoslovakia.

Nov 1957
DURKOVSKY, Juraj; KUZMA, Ivan

Cancer metastases into the skin. Neoplasma, Bratisl. 4 no.3:313-318 1957.

1. Onkologisches Forschungsinstitut, Bratislava.
(SKIN NEOPLASMS, pathol.
metastatic, mechanism of metastases)

U

Country : CZECHOSLOVAKIA
 Category= : General Problems of Pathology. Tumors. Experimental Therapy
 Abs. Jour. : Ref Zhur-Biol, 1959, No 4, 13307
 Author : Durkova, J.; Cepcek, P.; Kuzma, *Ivan*
 Institut. : - *Oncological Research Inst, Bratislava*
 Title : The Influence of Beta-mercaptoethylamine on Irradiated BS Tumors in Rats
 Orig. Pub. : Neoplasma, 1957, 4, No 4, 345-350
 Abstract : It is known that beta-mercaptoethylamine (EM) is an effective agent protecting the animal organism from the action of ionizing radiation. EM is used in the treatment of radiation sickness. In connection with this, a question was raised as to the possibility of a decreased effect of roentgen therapy of tumors after the use of EM. The experiments were performed on rats of the Wistar strain to which malignant hamartomas (BS tumor) were grafted subcutaneously. A few minutes

Card: 1/4

16

Country :
Category= :

Abs. Jour. :

Author :
Institut. :
Title :

Orig. Pub. :

Abstract : these results cannot contraindicate the use of
BM in clinical practice for the following rea-
sons: (1) the dosage of BM used experimentally
is considerably greater than its therapeutic
dose calculated according to the weight of the
human body; (2) to eliminate all symptoms of ra-
diation sickness, from one to three doses of BM
are required, and therefore when the fractional
method of irradiation of tumors is used its ef-
fectiveness is lowered by more than can be

Card: 3/4

17

KUZMA, I.; SIRACKA-VESELA, E.

The application of the antikinetic therapeutic agent "Marzine"
in the treatment of the radiation sickness. Neoplasma, Bratisl.
7 no.4:404-407 '60.

1. Radiological Department of the Oncological Research Institute,
Bratislava, Czechoslovakia.

(ANTI-HISTAMINICS ther)

(RADIATION INJURY ther)

DURKOVSKY, J.; EICHNEROVA, V.; KUZMA, I.

Changes in the white components of the blood picture in actinotherapy of malignant tumors. Neoplasma 9 no.5:507-516 '62.

1. Radiologische Abteilung des Onkologischen Forschungsinstitutes, Bratislava, CSSR.

(LEUKOCYTES) (RADIOTHERAPY)
(NEOPLASMS)

DURKOVSKY, J.; KUZMA, I.; JANCINA, J.

On the evaluation of the adrenalin test in radiotherapy. Bratisl.
Lek. Listy 42 no.8:458-461 '62.

1. Z Vyskumneho ustavu onkologickeho v Bratislave, riaditel clen
koresp. SAV doc. MUDr. V. Thurzo.
(RADIOTHERAPY) (EPINEPHRINE) (NEOPLASMS)

KUZ'NA, I. M. Cand Med Sci — (diss) "To the question of the
pathogenesis and treatment of exudative pleurisy," Kaunas, 1960, 32pp,
250 cop. (Kaunas State Medical Institute) (KL, 45-60, 128)

KUPCINSKAS, Juozas, prof.; KUZMA, Jonas, dots.; SUMINAS, A., red.

[Tuberculosis] Tuberkulioze. Vilnius, Mintis, 1964. 209 p.
[In Lithuanian] (MIRA 18:6)

KUZMA, L., Mgr.

Marginal costs at seaports. Tech.gosp.morska 10 no.1:6-7 Ja '60.
(EBAI 9:4)

1. Wyzsza Szkola Ekonomiczna, Sopot.
(Harbors)

KUZMA, Leopold

Area needs for the future development of the Gdynia Seaport
with particular consideration on the construction of warehouses.
Gosp morska no.8:97-165 '63.

SZCZEPANIAK, Tadeusz, dr; KUZMA, Leopold, dr

Concentration of the production potential of the sea ports;
remarks on the concept of building a new maritime port near
Koszalin. Tech gosp morska 13 no.1:5-7 Ja '63.

1. Wyższa Szkoła Ekonomiczna, Sopot.

s/0198/64/010/003/0310/0316

ACCESSION NR: AP4037993

AUTHOR: Kuz'ma, V. M. (Kiev)

TITLE: Investigation by the method of averaging of the dynamic stability of an oscillating system with randomly varying parameters

SOURCE: Prykladna mekhanika, v. 10, no. 3, 1964, 310-316

TOPIC TAGS: dynamic stability, dynamic instability, oscillation, oscillating system, stability, instability

ABSTRACT: Using averaging, a study is made of the stability of oscillating systems with randomly varying parameters, described by a system of differential equations. Change of the variables permits excluding the time from the right sides of the equations with any degree of accuracy relative to ϵ . Since an oscillating system is considered unstable on the average if the mathematical expectation of solution of the corresponding system of differential equations is unlimited with an unlimited increase in time, by studying the mathematical expectation of the new variable it is possible to obtain the conditions of instability on the average of the system. As an example, a differential equation is examined. By introducing

Card 1/2

ACCESSION NR: AP4037993

change and averaging in time and in realization, the author proceeds to a system of differential equations with constant coefficients. The solution of that system, and also of the starting equation, in the case of the correlation function $k(\tau)$

$= e^{-\nu\tau} \cos \nu\tau$ of the random coefficient is unstable when the given conditions are fulfilled. Regions of instability of an oscillating system have been constructed on the planes of parameters characterizing random changes in frequency and energy scattering. Orig. article has : 40 formulas and 2 figures.

ASSOCIATION: Instytut mekhaniki* AN URSR (Institute of Mechanics, AN URSR)

SUBMITTED: 11Jul63

DATE ACQ: 12Jun64

ENCL: 00

SUB CODE: AS, GP

NO REF SOV: 001

OTHER: 000

Card 2/2

L 05227-67 EWT(a)/T/EMP(L) IJP(c)
ACC NR: AR6017087

SOURCE CODE: UR/0372/65/000/012/V011/V011

AUTHOR: Kuz'ma, V. M.

TITLE: N. N. Bogolyubov's averaging method for stochastic differential equations

SOURCE: Ref. zh. Kibernetika, Abs. 12V54

REF SOURCE: Sb. Dinamika sistem tverdykh i zhidkikh tel. Kiyev, 1965, 35-37

TOPIC TAGS: differential equation, stochastic process, mathematic prediction, asymptotic solution

ABSTRACT: The author formulates a theorem substantiating the employment of the averaging method to determine to a first approximation the mathematical expectations for the solution of equations in a standard form with right-hand parts represented by random functions of time. The statement and proof of the theorem are analogous to those of the theorem of N. N. Bogolyubov which estimates the error of a first approximation derived with the aid of asymptotic methods for a finite interval of time. Author's abstract. [Translation of abstract]

SUB CODE: 12

Card 1/1

UDC: 619.21

KUZ'MA, V.M. (Kiyev)

Simulation of a vibrating system with casually changing parameters. Prikl. mekh. 1 no.1:125-127 '65.

(MIRA 18:5)

1. Institut mekhaniki AN UkrSSR.

AUTHOR: Kuz'ma, V. M. (Kiev)

25
B

TITLE: Dynamic stability of elastic structures under the action of a tangential, randomly varying force

SOURCE: Prikladna mekhanika, v. 10, no. 5, 1963, 50-54

NOTE: Structure type: ...

ASSOCIATION: Instytut mekhaniki AN URSR (Academy of Sciences Institute, AN URSR)

L 23205-66 ENT(1)

ACC NR: AP6013590

SOURCE CODE: UR/0198/65/001/001/0125/0127

AUTHOR: Kuz'ma, V. M. (Kiev)

ORG: Institute of Mechanics, AN UkrSSR (Institut mekhaniki AN UkrSSR)

TITLE: Simulation of an oscillating system with randomly changing parameters

SOURCE: Prikladnaya mekhanika, v. 1, no. 1, 1965, 125-127

TOPIC TAGS: oscillator theory, oscillation, parameter, stochastic process, function

ABSTRACT: The averaging method of BOGOLYUBOV enables one to study the dynamic instability of oscillating systems described by the equation

$$\frac{d^2 y}{dt^2} + \omega^2 y = \epsilon \omega^2 \xi(t) y,$$

where ϵ is a small parameter and $\xi(t)$ a stationary stochastic function.

A simulation is described for the solution, and the graph of the correcting function is given. Orig. art. has: 3 figures and 4 formulas. JPRS

SUB CODE: 20 / SUBM DATE: 18Aug64 / ORIG REF: 002 / OTH REF: 001

Card 1/1

PB

TRZASKOWSKI, Stanislaw; KUZMA, Wacław; HANUSZKIEWICZ, Henryk

Right diaphragmatic hernia. Polski przegl. radiol. 20 no.1:
37-40 Jan-Feb 56.

1. Z Zakładu Radiologii A M w Łodzi. Kier. doc. dr. W.
Trzetrzewinski z III Kliniki Chirurg. A M w Łodzi. Kier. prof
dr. W. Tomaszewicz i z Pracowni Radiolog. Szpitala Miejskiego
w Kutnie Dyrektor dr. J. Perkowicz. Stanisław Trzaskowski,
Łódź, ul. Zielona 17 m. 5. Wacław Kuzma, Łódź, ul. Narutowicza
42. Henryk Hanuszkiewicz, Łódź, ul. Kopcińskiego 22.

(HERNIA, DIAPHRAGMATIC, case reports.
(Pol))

21.6000

24135

P/046/60/005/009/006/006

D241/D302

AUTHORS: Andruszkiewicz, Jozef, Kuzma, Witold, Polacki, Zenon

TITLE: Plastic scintillators

PERIODICAL: Nukleonika, v. 5, no. 9, 1960, 575 - 582

TEXT: p-terphenyl + POPOP in polystyrene plastic scintillators have been produced. The dependence of the detection efficiency upon the composition of scintillators is investigated in order to find the optimum cocentration of ingredients. The dependence of the detection efficiency upon the size of the scintillator is also investigated. The authors aim is to produce scintillators for gamma-rays of energy around 1 MeV to suit Soviet photomultipliers 69Y-19 (FEU-19). FEU-19 have Sb-Cs cathodes and their maximum sensitivity lies at about 4100 Å. The role of POPOP is to shift the spectrum of light emitted by terphenyl, whose maximum is at 3400 - 3700 Å, toward longer wavelengths to match the sensitivity of the photocathode. In order to measure the variation of counting rate with the size of the scintillator, material

Card 143

24135

P/046/60/005/009/006/006
D241/D302

Plastic scintillators

from the same sample was machined to a diameter of 38.1 mm and cut to different heights. ^{65}Zn gamma-source was in each case placed adjacent to the top of the scintillator, the beta rays being totally absorbed in a 1.5 mm thickness of aluminum. For the given geometry and gamma-ray energy the highest counting rate was found for a scintillator of about 3.5 cm height. Since the self-absorption of light is the main factor limiting the size of the scintillator, the absorption was measured directly. A luxmeter was used for this purpose with light of 4290 Å wavelength. The coefficient of absorption of 0.0395 cm^{-1} compares favorably with the value of 0.0593 cm^{-1} given by C.N. Chou (Ref. 6: Phys. Rev. 87, 375 (1952)). The pulse-height distributions from the plastic scintillator were compared with those from a crystal of tolan (diphenyl-acetylene). The obtained ratios between the pulse-heights from the plastic scintillators and tolan were then related to anthracene. To find the optimum concentration of ingredients, plastics with various concentrations were polymerized simultaneously to eliminate possible variations due

Card 2/3

Plastic scintillators

P/046/60/005/009/006/006
D241/D302

to differing conditions of polymerization. The best results were obtained with a scintillator of the following composition: 3,4-terphenyl and 0.025% POPOP (by weight). These plastic scintillators yield pulse-heights 44% of pulse-heights in anthracene crystal. Terphenyl and POPOP = 1,4-bis(2-(5-phenyl-oxypolyl))-benzene were made in the Department of Inorganic Chemistry of the Gdańsk Technical University. There are 5 figures and 7 references: 2 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: *Progress in Nuclear Physics*, vol. 5, London 1956 Pergamon Press; J. A. Clark and others: *Rev. Scien. Instrum.* 28, 433 (1957); C. H. J. van der Vegt: *Phys. Rev.* 87, 376 (1952); F. H. Hayes and others: *Nucleonics* 14, 141 (1952).

ASSIGNMENT. Politechnika gdańska, katedra fizyki (Gdańsk Technical University, Department of Physics)

DATE: June, 1959

Card 3/3

43385

P/046/62/007/009/001/002
D256/D308

21.6000

AUTHOR:

Kuźma, Witold

TITLE:

Design and filling procedure of BF_3 neutron proportional counters

PERIODICAL:

Nukleonika, v. 7, no. 9, 1962, 585-590

TEXT:

A number of long neutron counters operating at 65 mm Hg pressure of BF_3 have been produced and their performance was tested over long periods of counting. The counters were designed for operation at a low neutron flux and, therefore, brass could be used for the outside electrode; the center electrode was made of 0.04 mm tungsten wire and it was suspended through a glass-copper seal. The BF_3 gas was obtained from decomposition of

$\text{C}_6\text{H}_5\text{N}_2\text{BF}_4 \xrightarrow{1000^\circ} \text{C}_6\text{H}_5\text{F} + \text{N}_2 + \text{BF}_3$ and it was passed several times through the gas handling system and the counters in order to remove all the traces of water vapor, nitrogen and other contaminations: this simple procedure was found fully adequate. The behavior of

Card 1/2

Design and filling procedure ...

P/046/62/007/009/001/002
D256/D308

the counters was investigated over a period of 4 years and their characteristics did not deteriorate after registering up to 10^7 neutrons. There are 5 figures.

ASSOCIATION: Politechnika Gdańska, Gdańsk, Katedra Fizyki II
(Gdańsk Polytechnic, Gdańsk, Department of Physics II)

SUBMITTED: June, 1962

X

Card 2/2

L 43103-66	EWP(e)/EWT(m)/T/EWP(t)/ETI	IJP(c)	JD/WW/JG
ACC NR: AP6014117	(N)	SOURCE CODE: UR/0370/65/000/006/0127/0129	
AUTHORS: <u>Kuz'ma, Ye. B. (L'vov); Lakh, V. I. (L'vov); Voroshilov, Yu. V. (L'vov);</u> <u>Stadnyk, B. I. (L'vov); Markiv, V. Ya. (L'vov)</u>			
ORG: none	39		
TITLE: Phase diagram of the system <u>Zr--Fe--B</u>			
SOURCE: AN SSSR. Izvestiya. Metally, no. 6, 1965, 127-129			
TOPIC TAGS: alloy phase diagram, zirconium containing alloy, iron containing alloy, boron containing alloy			
ABSTRACT: The phase diagram for the system Zr--Fe--B at 850C was investigated by x-ray analysis. This investigation supplements the results of V. N. Svechnikov, V. M. Pan, and A. Ts. Spektor (Promezhutochnyye fazy v sisteme zhelezo-tsirkoniy. Zh. neorgan. khimii, 1963, 8, 2118). The specimens were prepared from Fe and ZrBr ₂ at 1600C. A total of 72 different specimens was studied, and the experimental results are presented graphically (see Fig. 1). In addition, the crystal structure of the compound Zr ₂ Fe was determined. It was found that the structure of Zr ₂ Fe is of the Ti ₂ Ni type with a = 12.14 Å. A detailed description of the structure is to be			
Card 1/2	UDC: 669.017.13		

L 43103-00

ACC NR: AP6014117

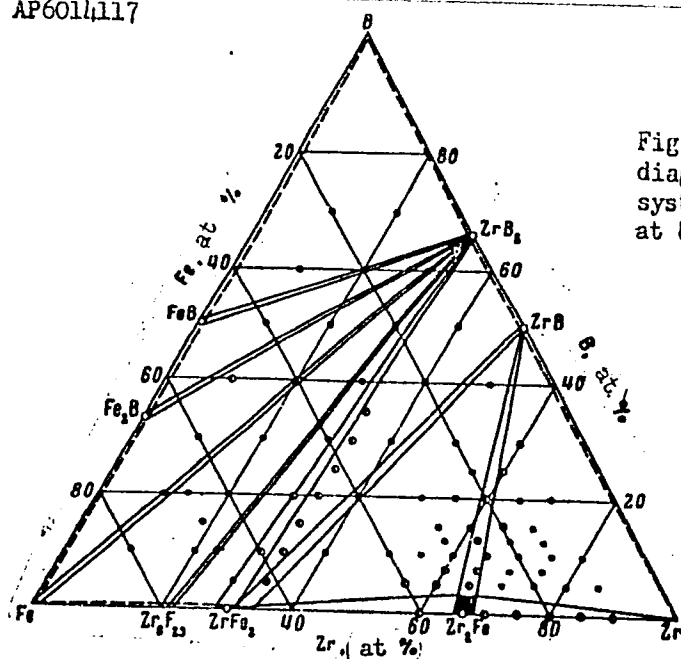


Fig. 1. Phase diagram of the system Zr-Fe-B at 850C.

presented elsewhere. Orig. art. has: 1 graph.

SUB CODE: 11/
Card 2/2 MLP

SUBM DATE: 18Sep64/

ORIG REF: 005/ OTH REF: 001

"APPROVED FOR RELEASE: Monday, July 31, 2000

CIA-RDP86-00513R000928010

APPROVED FOR RELEASE: Monday, July 31, 2000

CIA-RDP86-00513R000928010

78-5-3-17/47

AUTHORS: Cherkashin, Ye. Ye. , Gladyshevskiy, Ye. I. , Kripyakevich, P. I. , Kuz'ma, Yu. B.

TITLE: X-Ray Structural Investigations of Some Systems of Transition Metals (Rentgenostrukturnoye issledovaniye nekotorykh sistem perekhodnykh metallov)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 3, pp. 650-653 (USSR)

ABSTRACT: By the X-ray structural method alloys in the following systems were investigated: Mn-Be, Cr-Be, V-Be, Mo-Be, W-Be, Ta-Be, Nb-Be, Mn-Fe-Si, Mn-Fe-Sn, Mn-Co-Si, Mn-Co-Ge, Mn-Co-Ni, Mn-Ni-Si, Mn-Ni-Ge, Mn-Ni-Sn, Mn-Cu-Si, Zr-V-Ni, Zr-Cr-Ni, Zr-Mn-Ni, Zr-Fe-Ni, Zr-Co-Ni.

By the investigations of the systems the following new compounds were determined which occur at 400°C:

MnBe₈ (at t = 1100°C, the composition is MnBe₃₁₃ of the type

MgCu₂), CrBe₁₂(ThMn₁₂), VBe₁₂(ThMn₁₂), NbBe₁₂(ThMn₁₂)_m

NbBe₂, NbBe₅, MoBe_{12+x}, WBe_{12+x}, CO₂MnSi (CsCl), Mn₃CO₃Si₂

Card 1/2

78-3-3-17/47

X-Ray Structural Investigations of Some Systems of Transition Metals

(MgZn₂), MnCoSi, Mn₁₂CO₃Si₅, Mn₃Ni₃Si₂ (MgZn₂), MnNiSi,
CO₂MnGe (Cu₂MnAl), Ni₂MnGe (Cu₂MnAl), Co₂MnSn (Cu₂MnAl),
Ni₂MnSn (Cu₂MnAl), ZrMnNi (MgCu₂), ZrV_{0.5}Ni_{1.5} (MgCu₂).

In the systems Mo-Be, W-Be and Ta-Be compounds with a tetragonal structure occur. The composition determined for the first time is the following: MoBe₁₂, WBe₁₂ and TaBe₁₂.

All these compounds belong to the type ThMn₁₂. In the system Mn-Fe-Si the following solid solutions occur: Mn₃Si and Fe₃Si. In the system Mn-Co-Si solid solutions of cobalt and silicon in β -Mn occur and solutions of cobalt in Mn₅Si₃ and Co in MnSi. In the system Zr-Fe-Ni a solid solution of Ni in ZrCo₂ occurs. In the system Zr-Co-Ni a solid solution of Ni in ZrCo₂ occurs. There are 1 figure and 11 references, 5 of which are Soviet.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. I. Franko
(L'vov State University imeni I. Franko)

SUBMITTED: June 25, 1957

Card 2/2

AUTHORS: Gladyshevskiy, Ye.I. and Kuz'ma, Yu.B. SOV/21-58-11-13/28

TITLE: A Roentgenographic Structural Investigation of Vanadium - Germanium Alloys (Rentgenostrukturnoye issledovaniye splavov vanadiya s germaniyem)

PERIODICAL: Dopovidi Akademii nauk Ukrain's'koi RSR, 1958, Nr 11, pp 1208-1211 (USSR)

ABSTRACT: The authors carried out roentgenographic and metallographic investigations of the seven alloys of vanadium with germanium containing from 29.1 to 83.3 atomic per cent of vanadium. The alloys were obtained out of 99.9% pure vanadium and 99.7% pure germanium. The existence of a new compound, V_5Ge_3 , was established. This compound has a structure of the Mn_5Si_3 (lattice constants and other characteristics are as follows: $a = 7.280 \pm 0.002$ kX; $c = 4.960 \pm 0.002$ kX; $\frac{c}{a} = 0.676$; $x_V = 0.25$; $x_{Ge} = 0.61$). In quickly cooled alloys, the compound V_5Ge_3 exists in equilibrium with germanium and the compound V_3Ge . P.I. Kripyakevich participated in the discussion of the problems raised during this investigation. There are 3 tables, 1 graph and 4 references, 2 of which are Soviet, 1 German and 1 unidentified.

Card 1/2

SOV/21-58-11-13/28

A Roentgenographic Structural Investigation of Vanadium - Germanium Alloys

ASSOCIATION: L'vovskiy gosudarstvennyy universitet imeni Iv. Franko
(L'vov State University imeni Iv. Franko)

PRESENTED: By Member of the AS UkrSSR, V.N. Svechnikov

SUBMITTED: May 19, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

Card 2/2

MAKSHINSKY, Ye. I.; KRIP'YAKOVICH, P. I.; KUZMA, Ye. B.

"The Crystal Structure of Ternary Compounds in the Systems
Cr-Mn-Si and Cr-Co-Si"

a report presented at Symposium of the International Union of
Crystallography Leningrad, 21-27 May 1979

GLADYSHEVSKIY, Ye.I.; KUZ'MA, Yu.B.

Crystal structure of the ternary phases in the systems Mo(W) - Fe
(Co, Ni) - Si. Zhur. strukt. khim. 1 no.1:66-71 My-Je '60.

(MIRA 13: 8)

1. L'vovskiy gosudarstvennyy universitet imeni Iv. Franko.
(Systems (Chemistry))

KUZ'MA, Yu.B.; CHERKASHIN, Ye.Ye. [Cherkashyn, Ye.Ye.]

Crystalline structure of the compound $MnNi_{1.55}Si_{0.45}$. Dop. AN URSR
no.10:1413-1416 '60. (MIRA 13:11)

1. L'vovskiy gosudarstvennyy universitet im. Iv.Franko. Preds-
tavleno akademikom AN URSR V.N.Svechnikovym.
(Manganese-Nickel-Silicon alloys)

GLADYSHEVSKIY, Ye.I.; KRIPIYAKEVICH, P.I.; TESLYUK, M.Yu.; ZARECHNYUK, O.S.;
KUZ'MA, Yu.B.

Crystalline structures of certain intermetallic compounds. Kris-
tallografiia 6 no.2:267-268 Mr-Ap '61. (MIRA 14:9)

1. L'vovskiy gosudarstvennyy universitet im. I.Franko.
(Intermetallic compounds) (Crystal lattices)

GLADYSHEVSKIY, Ye.I.; KRIPYAKEVICH, P.I.; KUZ'MA, Yu.B.; TESLYUK, M.Yu.

New representatives of the structural types $Mg_6Cu_{16}Si_7$ and Th_6Mn_{23} . Kristallografiia 6 no.5:769-770 S-0 '61.

(MIRA 14:10)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.
(X-ray crystallography)

S/192/62/003/002/001/004
D267/D301

AUTHOR: Kuz'ma, Yu.B., Teslyuk, M.Yu., and Gladyshevskiy,
Ye.I.

TITLE: The Laves three-component phases in the system
Mn - Ni - Ge

PERIODICAL: Zhurnal strukturnoy khimii, v. 3, no. 2, 1962,
156 - 158

TEXT: In view of crystal-chemical likeness between Si and Ge the authors assumed that, when the Mn content amounts to 33.3 at.%, the system Mn - Ni - Ge contains ternary compounds possessing the Laves phase structure, just as this was found for the system Mn - Ni - Si; to verify this assumption they studied six ternary alloys containing 25, 22.5, 20, 16.7, 15 and 12 at.% of Ge, obtained by direct fusion of very pure metals in 'korundiz' crucibles in the hydrogen atmosphere, using the Tammann furnace. After annealing and hardening, the alloys were subjected to X-ray analysis (powder method). The

Card 1/2

The Laves three-component phases ...

S/192/62/003/002/001/004
D267/D301

existence and crystal structure of two intermetallic compounds were determined: (1) $\text{MnNi}_{1.3}\text{Ge}_{0.7}$ (structure of the MgZn_2 type, $a = 4.856 \pm 0.002 \text{ \AA}$, $c = 7.635 \pm 0.003 \text{ \AA}$, $\frac{c}{a} = 1.572$) and (2) $\text{MnNi}_{1.55}\text{Ge}_{0.45}$ (structure of the MgCu_2 type, $a = 6.762 \pm 0.001 \text{ \AA}$). There are 3 tables.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. Iv. Franko
(L'vov State University im- Iv. Franko)

SUBMITTED: May 8, 1961

Card 2/2

S/192/62/003/004/002/002
I042/I242

AUTHORS: Gladyshevskiy, E.I., Kripyakevich, P.I., and Kuz'ma, Yu.S.

TITLE: Crystal structures of ternary compounds with low silicon content in the systems Cr - Ni - Si and Cr - Co - Si

PERIODICAL: Zhurnal strukturnoy khimii, v. 3, no.4, 1962, 414-423

TEXT: This investigation is a follow up of a previous work by the authors where ternary compounds were obtained in similar systems with Mn in place of Cr. It is also intended to clarify the conditions of formation of phases with the β -U structure. The 148 alloys in the two systems, containing no more than 25 mole % Si, were heated in vacuum at 800°C for 150 hrs or at 1100°C for 30 hrs. They were then studied with the aid of a Debye and Preston X-ray powder cameras and an MIM-6 (MIM-6) microscope. In the Cr - Ni - Si system at 800°C a new phase was found with the approximate formula $\text{Cr}_6\text{Ni}_{2.8}\text{Si}_{1.2}$ and a powder pattern consistent with the β -U

Card 1/3

S/192/62/003/004/002/002
I042/I242

Crystal structures of ternary compounds...

structure of $\text{Cr}_{4.25}\text{Fe}_{4.25}\text{Si}_{1.5}$. None of the compounds studied had the Laves (i.e., MgZn_2 , MgCu_2 , or MgNi_2) structure. At 1100°C the compound $\text{Cr}_{6.5}\text{Ni}_{2.5}\text{Si}$ was observed, with space group $P4/mnm$ and lattice constants $a = 8.769$, $c = 4.561$ kX, $c/a = 0.520$. The structure was found by comparing the observed intensities with those of several possible atomic distributions. Another compound with the formula $\text{Cr}_7\text{Ni}_5\text{Si}_2$ and the β -Mn structure or the Au_4Al superstructure was observed at 800°C . It has the space group $P2_13$ and $a = 6.108$ kX. In the Cr - Co - Si system two ternary compounds were found at 800°C . One, $\text{Cr}_3\text{Co}_5\text{Si}_2$, has the α -Mn structure or a $\text{Ti}_5\text{Re}_{24}$ superstructure, space group $I\bar{4}3d$, $a = 8.687$ kX. The other is $\text{Cr}_{3.5}\text{Co}_{4.0}\text{Si}_{2.5}$ with a structure related to that of β -U. Again no Laves phases were encountered. There are 9 tables.

Card 2/3

S/192/62/003/004/002/002
I042/I242

Crystal structures of ternary compounds...

ASSOCIATION: Lvovskiy gosudarstvennyy universitet im. Iv. Franko
(Lvov State University im. Iv. Franko)

SUBMITTED: June 26, 1961

✓

Card 3/3

GLADYSHEVSKIY, Ye.I. [Hladyshevs'kyi, IE.I.]; MARKIV, V.Ya.; KUZ'MA, Yu.B.

New ternary compounds having a structure of the $Mg_6Cu_{16}Si_7$ type.
Dop. AN URSR no.4:481-483 '62. (MIRA 15:5)

1. L'vovskiy gosudarstvennyy universitet. Predstavleno
akademikom AN USSR I.N.Frantsevichem [Frantsevykh, I.M.].
(Systems (Chemistry))

S/226/62/000/006/016/016
E193/E383

AUTHORS: Kuz'ma, Yu.B., Kidam, S.M., Lakh.Y.I., Stadnik, B.I. and Cherkashin, Ye.Ye.

TITLE: Investigation of the physicochemical properties of tungsten-rhenium thermoelectrodes

PERIODICAL: Poroshkovaya metallurgiya, no. 6, 1962, 100 - 103

TEXT: The object of the present investigation was to determine the causes of instability of the thermoelectric and mechanical properties of W-Re alloy in relation to the conditions and duration of heat-treatment. Wire specimens, 0.5 and 0.34 mm in diameter, containing 5, 10, 15 and 20 wt.% Re (alloys BP(VR)-5, VR-10, VR-15 and VR-20) were used in the experiments. The heat-treatment (20 - 700 h at 1400 - 2 000 °C) was conducted in vacuum, in argon or in hydrogen. All the investigated compositions were in the single. β -phase range. The Re content of the alloys was checked by chemical analysis before and after heat treatment. The experimental work comprised measurements of thermo-e.m.f., X-ray diffraction analysis and examination of the microstructures of longitudinal and transverse cross-sections of the specimens. "The thermo-e.m.f. increased Card 1/4

Investigation of

S/226/62/000/006/016/016
E193/E383

with increasing temperature and time of the heat treatment; in addition, the thermo-e.m.f. decreased after treatment in argon or hydrogen and increased after vacuum treatment" [Abstracter's note: this statement does not tally with the contents of a table in which the results of measurements of thermo-e.m.f. are reproduced, there being no clear correlation between the values of the thermo-e.m.f. and the conditions of heat treatment.] The thermocouple VR-15/20 (with a high Re content) proved more stable in hydrogen at 1 800 - 2 000 °C than the thermocouple VR-5/20 with a lower Re content. The Re concentration increased with increasing annealing time, the relative increase being higher for electrodes with lower Re contents. The relative change in the Re content was lower in vacuum than in argon or hydrogen. The degree of recrystallization of thermoelectrodes increased with increasing temperature and time of the treatment and dependend on the Re content. A slight longitudinal splitting of the electrodes was caused by texture, which persisted even after prolonged annealing. Phase analysis showed that all the thermoelectrodes studied constituted solid solutions whose lattice constants depended on the composition of the alloy. In some

Card 2/4

Investigation of

S/226/62/000/006/016/016
E193/E383

specimens, the σ - and γ -phases were also observed. The formation of the σ -phase was attributed to a decrease in the tungsten content in the β -phase, caused by a reaction between tungsten and impurities (oxygen, nitrogen, carbon) in the ambient atmosphere. The thermoelectrode VR-20, treated in vacuum for 700 h, contained the β -phase in equilibrium with the γ -phase with a lattice constant $a = 9.63 \text{ kX}$, which indicated that the σ -phase of the system W-Re existed at temperatures above 1400°C . Prolonged holding at 400°C brought about decomposition of the σ -phase and attainment of the $\beta + \gamma$ equilibrium. Tungsten carbide (W_2C), formed during annealing in vacuum above 1300°C due to the presence of oil vapours, was present in addition to the β -phase in thermoelectrodes operating in vacuum. When the specimens were vacuum-annealed for 20 h at 2000°C in a furnace with graphite heating elements, W_2C or the σ -phase (in specimens with a Re content of 23%) of the W-Re system were precipitated from the β -phase. Alumina sheaths did not offer sufficient protection against the effect of carbon at $1800 - 2000^\circ\text{C}$. The formation of W_2C and the σ -phase at 1800°C could be prevented by using beryllia sheaths which, however, were not effective at 2000°C . The presence of the

Card 5/4

Investigation of

S/226/62/000/006/016/016
E193/E383

α -phase and W_2C in the thermoelectrodes studied caused a decrease
in their ductility.
There is 1 table.

ASSOCIATION: L'vovskiy gosuniversitet im. I. Ya. Franko
(L'vov State University im. I. Ya. Franko)

SUBMITTED: April 14, 1960

Card 4/4

MARKIV, V.Ya.; GLADYSHEVSKIY, Ye.I. [Hladyshevs'kyi, IE.I.]; KUZ'MA, Yu.B.

New ternary compounds with a structure of the $MnCu_2Al$ type.
Dop. AN URSR no.10:1329-1331 '62. (MIRA 18:4)

1. L'vovskiy gosudarstvennyy universitet.

S/070/62/007/002/016/022
E132/E160

AUTHORS: Kripyakevich, P.I., and Kuz'ma, Yu.B.

TITLE: The compounds of rhenium with aluminium and
certain of their crystal structures

PERIODICAL: Kristallografiya, v.7, no.2, 1962, 309

TEXT: ReAl (CsCl type with $a = 2.88 \text{ \AA}$) is already known.
In equilibrium with Al there is a cubic compound
($a = 7.528 \pm 0.001 \text{ \AA}$) of the WAl_{12} type. When intensities for
 ReAl_{12} with the same parameters as WAl_{12} are calculated, good
agreement is obtained. There appears to be a compound ReAl_2 .
For 36.5 at.% Al, besides Re, an α -Mn-type phase χ was found
($I \bar{4}3 m$ with $a = 9.58 \text{ \AA}$). It may be $\text{Re}_{24}\text{Al}_5$.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. I.Franko
(L'vov State University imeni I. Franko)

SUBMITTED: April 10, 1961

Card 1/1

S/078/62/007/006/008/024
B106/B180

AUTHOR: Kuz'ma, Yu. B.

TITLE: Solid solutions on the basis of β -Mn in the ternary systems Mn-Co(Ni)-Si

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 6, 1962, 1343-1348

TEXT: Using microstructural and X-ray diffraction analysis, the homogeneity ranges of solid solutions on the basis of β -Mn, and some phase equilibria in the ternary systems Mn-Co-Si and Mn-Ni-Si were studied for high manganese and low silicon contents (≤ 20 at%). Results: The β -Mn solid solution contains in the system Mn-Co-Si up to 30 at% Co and 18 at% Si, and in the system Mn-Ni-Si up to 22 at% Ni and 13 at% Si. In the system Mn-Co-Si there is a ternary compound which is homogeneous in the range 40-45 at% Mn, 45-50 at% Co, and 15 at% Si. In the system Mn-Ni-Si there is a ternary compound which is homogeneous from 52-50 at% Mn, 34-36 at% Ni, and 15-17.5 at% Si. It includes the composition Mn_3Ni_2Si , is in equilibrium with the β -phase and has a Ti_2Ni -type cubic structure

Card 1/02

S/078/62/007/006/008/024
B106/B180

Solid solutions on the basis of ...

or superstructure. The results of structure determination of this ternary compound will be published separately. There is a small range of a solid solution on β -Mn basis in the system Mn-Ni-Si, which reaches 2.5 at% Si. Figs. 2 and 4 show the results of phase equilibrium determination in the parts of the systems Mn-Co-Si and Mn-Ni-Si which are rich in manganese. The alloys with 15-20 at% Si in the system Mn-Ni-Si were found to be inhomogeneous. In addition to the β -Mn solid solution they contain other ternary compounds whose ranges of homogeneity and phase equilibria will be subject of further studies. The author thanks Ye. I. Gladyshevskiy and P. I. Kripyakevich for discussing the results obtained. There are 5 figures and 1 table. The most important English-language references are: M. Hansen, K. Anderko, Constitution of binary alloys, 1958, p. 953; B. R. Coles, W. Hume-Rothery, J. Inst. Metals, 80, 85 (1951).

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. I. Franko
(L'vov State University imeni I. Franko)

SUBMITTED: February 15, 1961

Card 2/2 2

S/021/62/000/010/007/008
D251/D307

AUTHORS: Markiv, V.Ya', Hladyshevs'kyi, Ye.I., and Kuz'ma, Yu.B.

TITLE: New ternary compounds with a structure of the type
 $MnCu_2Al$

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 10,
1962, 1329 - 1331

TEXT: The authors discuss ternary systems A-B-C, where A and B are transition metals and C are elements of the IIIB, IVB and VB groups of the periodic table. The aim of the present work is to investigate analogous systems in which C is gallium. Compounds of this type are found, where A = Ti, V and B = Fe, Co, Ni. The structure of the compounds resembles that of $MnCu_2Al$, and the lattice constants are given in tabular form. The space group is $Fm_3m - O_h^5$. It is shown that in the systems Ta(Nb, Mo) - Fe(Co, Ni) - Ga, and Sc(Zr) - Ni - Ga, similar compounds do not exist. The results are obtained using x-ray methods on alloys of metals of purity not less than 99.9 %, fused in an atmosphere of inert gas at 600°C. There are 3 tables.
Card 1/2

New ternary compounds with a ...

S/021/62/000/010/007/008
D251/D307

ASSOCIATION: L'vivs'ky derzhavnyy universytet (L'viv State University)

PRESENTED: by I.M. Frantsevych, Academician

SUBMITTED: January 15, 1962

Card 2/2

S/021/63/000/002/011/016
D405/D301

AUTHORS: Kuz'ma, Yu. B. and Hladshevs'kyy, Ye. Ye.

TITLE: Crystal structure of the compound Mn_2Co_3Ge

PERIODICAL: Akademiya nauk UkrRSR. Dopovid. no. 2, 1963, 205-208

TEXT: Eleven alloys of the system Mn-Co-Ge were investigated by C-ray structural and microstructural methods of analysis. The alloys were prepared from electrolytic manganese, cobalt (99.9%) and germanium (99.9%). All but two of the alloys were found to be nonhomogeneous. The existence of a new ternary compound of $MgZn_2$ type was established; this compound exists in the system Mn-Co-Ge only at temperatures above $500^{\circ}C$, whereas in the system Mn-Co-Si it exists over the entire temperature range; its lattice constants are: $a = 4.803 \pm 0.002 \text{ \AA}$, $c = 7.739 \pm 0.004 \text{ \AA}$, $c/a = 1.611$; the compound has a narrow region of homogeneity. The two alloys which were found to be homogeneous have a structure of $MnCu_2Al$ type;

Card 1/2

Crystal structure of ...

S/021/63/000/002/011/016
D405/D301

their region of homogeneity (H phase) is considerable (20 - 33.3 atom.% Mn). The investigations showed that the system Mn-Co-Si has an intermediate position between the systems Mn-Co-Si and Mn-Co-Sn. Three alloys of the system Mn-Fe-Ge were also studied. No compounds of $MgZn_2$ type were found in this system. There are 3 tables.

ASSOCIATION: L'vivs'kyi derzhavnyi universytet (L'viv State University)

PRESENTED: by Academician I. M. Frantsevich of the AS UkrRSR

SUBMITTED: February 24, 1962

Card 2/2

GLADYSHEVSKIY, Ye.I.; KUZ'MA, Yu.B.; KRIPYAKOVICH, P.I.

Crystal structures of the compounds Mn_3Ni_2Si , V_3Ni_2Si , Nb_3Ni_2Si ,
and of Cr and Ta compounds related to them. Zhur.strukt.khim. 4
no.3:372-379 My-Je '63. (MIRA 16:6)

1. L'vovskiy gosudarstvennyy universitet imeni Iv. Franko.
(Nickel-silicon alloys) (Crystallography)

ACCESSION NR: AP4004151

S/0294/63/001/002/0299/0305

AUTHORS: Lakh, V. I.; Stadny*k, B. I.; Kuz'ma, Yu. B.

TITLE: Thermoelectric stability of some tungsten-rhenium alloy thermocouples at high temperatures

SOURCE: Teplofizika vy*sokikh temperatur, v. 1, no. 2, 1963, 299-305

TOPIC TAGS: pyrometer, pyrometry, tungsten rhenium alloy thermocouple, tungsten rhenium alloy, thermocouple thermoelectric stability, thermocouple degeneration, thermocouple protection, thermocouple shielding, alumina shield, beryllium oxide shield, thermocouple reliability, alumina, beryllium oxide thermocouple

ABSTRACT: Thermal electrodes containing 5, 10, 15 and 20% rhenium, as well as thermocouples made up of combinations of these electrodes, were investigated to ascertain the factors that influence the sta-

Card 1/3

ACCESSION NR: AP4004151

bility of the thermoelectric characteristics of tungsten-rhenium alloys. The effect of a weakly-reducing medium on the thermoelectric characteristic of such thermocouples was also investigated in a high-temperature furnace. The test procedures are described in detail. The assembled experimental material leads to the conclusion that thermocouples made of tungsten-rhenium alloys can be used to measure high temperatures in vacuum and in neutral or hydrogen atmospheres. Certain combinations of thermal electrodes must be protected at high temperatures with ceramic beads. Thermocouples VR5-20 (one wire 5% rhenium and the other 20% rhenium) must be protected by alumina ceramics above 1400C and by beryllia ceramics above 2,000C. Large rhenium contents (10 and 20%, 15 and 20%) must be used in hydrogen atmospheres. Maximum wire diameter is recommended above 1800C. "The authors are grateful to Corresponding Member AN UkrSSR G. V. Samsonov and Doctor of Chemical Sciences Ye. Ye. Cherkashin for a discussion of the problems touched upon in the present work. Orig. art. has: 9 figures.

Card 2/3

ACCESSION NR: AP4004151

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. Iv. Franko
(L'vov State University)

SUBMITTED: 17Jun63

DATE ACQ: 26Dec63

ENCL: 00

SUB CODE: ML, MA

NO REF SOV: 005

OTHER: 001

Card 3/3

L 19908-63

EWP(q)/EWT(m)/EWP(B)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3005811

S/0226/63/000/004/0040/0048

AUTHORS: Kuz'ma, Yu. B. ; Lakh, V. I. ; Markiv, V. Ya; Stadnyk, B. I. ;
Gladyshhevskiy, Ye. I.

TITLE: X-ray diffraction analysis of the W-Re-C system

SOURCE: Poroshkovaya metallurgiya, no. 4, 1963, 40-48

TOPIC TAGS: W-Re-C, x-ray diffraction

ABSTRACT: Thirty-four alloys of the W-Re-C system containing 1-40 atomic % of C were investigated by x-ray diffraction. The effect of C content on the composition and properties of W-Re thermocouples was studied. Alloy samples weighing 30 g were prepared from the following powdered materials: tungsten carbide (6.09 at. % of C), tungsten - 99.98%, rhenium - 99.8%, and carbon (lampblack) 99.9%. The phase equilibria of cast alloys and of the alloys annealed at 2000, 1500, 1000 and 800C were determined. It was established that Re and alpha-W₂C form a continuous series of solid solutions. Two new compounds were found: a ternary compound W₃Re₂C with a cubic lattice akin to that of beta-Mn (space group $Fm\bar{3}m$, $a = 6.859 \pm 0.002$ Å); and a ternary carbide (WRe)C formed at temperatures above 2500C with a face-centered lattice of the type NaCl (space group $Fm\bar{3}m$ - O_h^2 , $a = 4.063 \pm 0.001$ Å).

Card 1/2

L 19908-63

ACCESSION NR: AP3005811

Preliminary data concerning the existence of a rhombic low-temperature version of W_2C were obtained. Orig. art. has: 4 tables and 5 figures.

ASSOCIATION: L'vovskiy ordena Lenina gosuniversitet im. I. Ya. Franko (L'vov State University)

SUBMITTED: 14 May 62

DATE ACQ: 06 Sep 63

ENCL: 00

SUB CODE: ML -

NO REF SOV: 006

OTHER: 009

Card 2/2

LAKH, V.I.; STADNYK, B.I.; KUZ'MA, Yu.B.

Thermoelectric stability of thermocouples from certain tungsten-rhenium alloys at high temperatures. Teplofiz. vys. temp. 1 no.2:299-305 S-0'63. (MIRA 17:5)

1. L'vovskiy gosudarstvennyy universitet imeni Iv. Franko.

ACCESSION NR: AP4006584

S/0021/63/000/004/0492/0495

AUTHOR: Kry*p'yakevy*ch, P. I.; Kuz'ma, Yu. B.; Protasov, V. S.

TITLE: Crystal structure of compounds in scandium-rhenium system

SOURCE: AN UkrRSR. Dopovidi, no. 4, 1963, 492-495

TOPIC TAGS: scandium rhenium system, scandium rhenium compound, crystal structure, crystal lattice, scandium rhenium alloy

ABSTRACT: Two compounds were found in the scandium-rhenium system by x-ray diffraction studies with a Debye camera. These were: ScRe_2 (MgZn_2 structure, with $a = 5.271 \pm 0.002$ Å, $c = 8.592 \pm 0.004$ Å, $c/a = 1.630$) space group $P6_3/mmc-D_{6h}^{14}$, $\text{Sc}_2\text{Re}_{14}$ ($\text{Ti}_2\text{Re}_{14}$ structure, with $a = 9.65$ Å, space group $I 43m - T^3_d$)

In slowly cooled alloys the latter compound exists in equilibrium with Re. An earlier hypothesis that this system should be analogous to the systems Zr-Re and Hf-Re (due to the close values of atomic radius for Sc, Zr, and Hf) in the regions of high Re consent was fully verified.

ASSOCIATION: L'vivsky*y derzhavny*y universy*tet (L'vov State University)

SUBMITTED: 19May62

DATE ACQ: 03May63

ENCL: 00

Card SUB CODE: ML

NO REF SOV: 003

OTHER: 002

GLADYSHEVSKIY, Ye.I.; MARKIV, V.Ya.; KUZ'MA, Yu.B.; CHERKASHIN, Ye.Ye.

Crystal structure of certain ternary intermetallic titanium compounds.
Titan i ego splavy no.10:71-73 '63. (MIRA 17:1)

Kuz'ma, Yu. B.

Yu. B. Kuz'ma, Ye. I. Gladyshevskiy, and Ye. Ye. Cherkashin. Physicochemical investigation of Nb-Co-Si system.

Title: Seminar on refractory metals, compounds, and alloys (Kiev, April 1963)

Source: Atomnaya energiya, v. 15, no. 3, 1963, 266-267

L 11772-65 EWT(m)/SWP(b) ASD(f)-2/ESD(2s) RDW/JD/JG/MLX

ACCESSION NR: A14048706

S: 0000/64/000/000/0153/0164

SOURCE: Vsesoyuznoye soveshchan'ye po splavam redkikh metallov, 1963. Voprosy teorii i primeneniya redkozemel'nykh metallov (Problems in the theory and use of rare-earth metals); materialy soveshchaniya, Moscow, Izdat. Nauka, 1966, p. 17.

alloys containing Mn, Fe, Co, Ni, Cr and Re. They were prepared from scandium (98.2% Sc, 0.17% rare earth metal) and Re (99.9% Re, 0.01% rare earth metal).

L 11772-65

ACCESSION NR: AT-048/08

exists in two modifications, the α and β forms. α - Sc_5Re_2 and β - Sc_5Re_2 were found analogously to the Zr-Re and Hf-Re systems.

SCANDIUM

RENIUM

SUB CODE: MM

NO. REF. CODE: 00

(74-1)

Card 2/2

ACCESSION NR: AP4012589

S/0021/64/000/002/0212/0215

AUTHOR: Kry*p"yakevy*ch, P. I.; Protasov, V. S.; Kuz'ma, Yu. B.

TITLE: Crystal structures of compounds of scandium with some transition metals

SOURCE: AN UkrRSR. Dopovidi, no. 2, 1964, 212-215

TOPIC TAGS: metals, alloys, steel, scandium, ScCo sub 2, zirconium-rhenium system, hafnium-rhenium system, scandium-rhenium system, X-ray diffraction Sc Mn sub 2

ABSTRACT: In former work by the authors (Dopovidi AN UkrRSR, 1963, 492) the structural analogy between the system Sc-Re, on the one hand, and the systems Zr-Re and Hf-Re, on the other hand, was established. In this instance the structure of alloys of Sc with Mn, Co, and Cu was investigated by the X-ray diffraction method. The existence of the following compounds was established and their structure determined: ScMn₂ (MgZn₂ type, $a = 5.03$ A, $c = 8.19$ A, $c/a = 1.63$); ScCo₂ (MgCu₂ type, $a = 6.89$ A); ScCo (CsCl type, $a = 3.16$ A); ScCu (CsCl type, $a = 3.24$ A). The results obtained confirmed the correctness of the assumption, as far as compounds with a low Sc content are concerned, that there

Card 1/2

ACCESSION NR: AP4012589

is a crystal-chemical analogy between So , on the one hand, and Zr and Hf , on the other. Orig. art. has: 3 tables.

ASSOCIATION: L'vivs'ky'y Derzhavny'y Universytet (L'viv State University)

SUBMITTED: 31Jan63

DATE ACQ: 03Mar64

ENCL: 00

SUB CODE: ML, EL

NO REF SOV: 003

OTHER: 002

Card 2/2

U 4721-65 RYT(-) TWT(-) 2/TXP(-) RWP(-) Pad/Pod-4 ASI(a)-5/AS(mp)-2/AFWL/

TOPIC TAGS: sodium cobalt sulfide phase diagrams, crystal structure, x-ray diffraction, ternary compounds

Abstract: This report describes the investigation of the ternary compounds of sodium, cobalt, and sulfur. The study was conducted to determine the crystal structure and phase diagrams of these compounds. The results show that the compounds form a series of solid solutions with varying compositions. The crystal structures were determined by x-ray diffraction, and the phase diagrams were constructed from the experimental data. The compounds were found to exhibit a variety of physical and chemical properties, including high thermal stability and electrical conductivity.

L 6771-65

ACCESSION NR: AP4044273

furnace. X-ray structural analysis was conducted by the powder method using chromium radiation and 57.3 mm diameter camera. The lattice constant of Mg_2Si was determined to be $a = 0.356 \text{ nm}$. The microstructural analysis was conducted using a JEM 8000 electron microscope. A mixture of concentrated nitric and hydrofluoric acids were used for etching the specimen in order to bring out the grain boundaries.

Page 2

ACCESSION NR: AP4037443

S/0021/64/000/005/0600/0603

AUTHOR: Kuz'ma, Yu. B.; Shurin, A. K.; Dmy*triyeva, G. P. (Dmitriyeva, G. P.); Gladyshevs'ky*y, Ye. I. (Gladyshevskiy, Ye. I.)

TITLE: Crystal structure of the beta-phase of the niobium-cobalt system and the solubility of silicon in it

SOURCE: AN UkrRSR. Dopovidi, no. 5, 1964, 600-603

TOPIC TAGS: niobium-cobalt system, beta-phase, beta-phase stabilization, x-ray analysis, space group D sup 4 sub 6h, space group P6 sub 3/mmc, MgZn sub 2 structure, niobium-cobalt-silicon system

ABSTRACT: X-ray analysis was used to establish that the beta-phase of the niobium-cobalt system, existing over the temperature interval 1140-1225C, has the MgZr₂ structure (space group P6₃/mmc -- D_{6h}²) with lattice parameters $a = (4.834 \pm 0.002) \text{ \AA}$, $c = (7.853 \pm 0.004) \text{ \AA}$, $c/a = 1.624$ for the alloy containing 35.1 atomic % Nb. The beta-phase had been studied earlier by two of the authors,

Card 1/2

ACCESSION NR: AP4037443

A. K. Sh. and G. P. D. (Voprosy* fiziki metallov i metallovedeniya, no. 18, 1963, p. 175). The other authors, Yu. B. K. and Y. I. G. had previously established the existence of the composition Nb_2Co_3Si at $800^\circ C$ (Mg_2Cu_3Si structure) in the ternary Nb-Co-Si system. The purpose of this study was to see whether this ternary alloy is a solid solution based on the beta-phase. The results showed the answer to be in the affirmative. They also indicated that the beta-phase of the Nb-Co can dissolve up to 25% atomic % Si, and that the addition of Si can stabilize the beta phase down to 800 C. Orig. art. has one table and one figure.

ASSOCIATION: L'vivs'ky* derzhavny* universytet, Instytut metalofizyky* AN UkrSSR (L'viv State University, Institute of Metal Physics, AN UkrSSR)

SUBMITTED: 03May63

DATE ACQ: 03Jun64

ENCL: 00

SUB CODE: MM,SS

NO REF SOV: 004

OTHER: 004

Card 2/2

KUZ'MA, Yu.B.; SKOLOZDRA, R.V.; MARKIV, V.Ya.

Crystal structure of RPb_3 compounds in the systems rare-earth metal - lead. Dop. AN URSR no.8:1070-1072 '64.

(MIRA 17:8)

1. L'vovskiy gosudarstvennyy universitet. Predstavleno akademikom AN UkrSSR V.N. Svechnikovym [Sviechnykov, V.M.].

ACCESSION NR: APl024995

S/0070/64/009/002/0279/0280

AUTHORS: Kuz'ma, Yu. B.; Markiv, V. Ya.

TITLE: The crystal structure of RIn_3 compounds in the system of rare earth metals plus indium

SOURCE: Kristallografiya, v. 9, no. 2, 1964, 279-280

TOPIC TAGS: crystal structure, rare earth metal, indium, alloy, x ray study

ABSTRACT: The properties of many such compounds have been studied previously. The authors sought to complete the data by investigating alloys of RIn_3 in which, $R = Y, Eu, Gd, Tb, Dy, Ho, Er, Tu, Yb, \text{ and } Lu$. The samples were prepared in an electrical furnace in an atmosphere of pure helium. X-ray studies show that all samples (except the one with Eu) give, in addition to indium lines, lines of cubic structure. The alloys thus consist of binary compounds in equilibrium with the In . The ratio of In to the binary compounds is about 3 : 1 in the alloys. The structural type is apparently that of $AuCu_3$ (space group $Pm\bar{3}m - O_h$). The lattice constants in this series of RIn_3 decrease systematically in going from La to Lu .

Card 1/2